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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,661	12/20/2001	Duane S. Treybig	7560 ONES	1640
49459	7590	12/14/2007		
NALCO COMPANY 1601 W. DIEHL ROAD NAPERVILLE, IL 60563-1198			EXAMINER METZMAIER, DANIEL S	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 12/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/034,661

**Applicant(s)**

TREYBIG ET AL.

**Examiner**

Daniel S. Metzmaier

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 3-14, 16-40, 42-53 and 55-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 42-46, 47-53 and 55-60 is/are allowed.
- 6) ☒ Claim(s) 3-14, 16-36 and 61-63 is/are rejected.
- 7) ☒ Claim(s) 37-40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 3-14, 16-40, 42-53 and 55-63 are pending.

#### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 September 2007 has been entered.

#### ***Claim Interpretation***

2. The claims 3-14, 16-40, 42-53 and 55-63 are drafted in product-by-process format. See MPEP 2113. It is noted that claims 61-63 employ open language, i.e., "comprising", defining the agent or monomer, e.g., amine-containing monomer. The reactants are open to more than the recited amine compounds having only two reactive amino hydrogen groups claimed provided said recited groups are present or would have been obvious reactants.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3-4, 6-14, 16-26, 47, 53 and 63 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 18-26 are indefinite since it is unclear what is applicants intended materials since the claim requires an amine capping monomer and an amine alkylating agents, i.e., said amine capping monomer would no longer be an amine capping monomer but a polymeric amine. The amine capping agents are not distinct from the amine reactants of claim 61 or 62. Thus, the ratio defined therein is unclear since it is unclear how much of the amines should be attributed to the ratio that are the amine reactants of claims 61 or 62 and how much of the amine capping agents, wherein both read on the same materials.

Since the claims employ open transitional language, i.e., comprising, and only define groups of the reactants, it is unclear what are the metes and bounds of the claims. It is unclear whether an oligomer, i.e, a partial product of a glycidyl compound with an amine with greater than two reactive hydrogens, is a reactive amine containing only two reactive amino hydrogens. It is unclear whether said oligomers are excluded from the molar ratio.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 3, 5-10, 16, 18-23 and 61-63 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ott et al, US 5,324,404. Ott et al (columns 9-12, grinding resins A1-6) disclose polymer resin compositions employing DER 732 (polypropylene glycol diglycidyl ether from Dow Chemicals) reacted with 2,2'-aminoethoxyethanol ( $\text{H}_2\text{NCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OH}$ ) and N,N-dimethylaminopropylamine ( $(\text{CH}_3)_2\text{NCH}_2\text{CH}_2\text{NH}_2$ ).

Applicants characterization (pages 7 and 8 of the instant specification) of aliphatic or cycloaliphatic epoxides or glycidyl compounds clearly includes glycol ethers as examples aliphatic or cycloaliphatic compounds. Please compare claim 5, which includes a polyether as an aliphatic compound.

Regarding claim 51, the N,N-dimethylaminopropylamine reads on the capping amine monomer and the alkylating agent is indistinct from the reaction products having

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complete reaction of the diglycidyl ethers or epihalohydrin capped diols since the product structures are indistinct and the halogen is a reaction by-product. Attention is further directed to claim 60(3).

Claim 60 is included in this rejection since 2,2'-aminoethoxyethanol reads on claim 60, 1)(b); when R1 is  $(-\text{CH}_2-\text{CH}_2-\text{O}-)_n$ ,  $n = 2$  and Z1 = H. DER 732 reads on components 2) and 3), which are indistinct in the final product when R8 is 2-hydroxy-3-chloropropyl. The terminal halogens would react and expected to form the same reaction products as the diglycidyl ethers. Said products reactive with the free amine nitrogens and forming a 2-hydroxypropyl linkage.

To the extent the claimed products defined by the product-by-process limitations would be different, Ott et al teaches each of the reactants for the claimed materials. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to vary the reactants as disclosed in Ott et al for the advantage of making the grinding aids taught in the Ott et al reference.

9. Claims 6-10, 18-23, and 27-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ott et al, US 5,324,404. Ott et al (columns 9-12, grinding resins A1-6) disclose polymer resin compositions employing DER 732 (polypropylene glycol diglycidyl ether from Dow Chemicals) reacted with 2,2'-aminoethoxyethanol ( $\text{H}_2\text{NCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OH}$ ) and N,N-dimethylaminopropylamine ( $(\text{CH}_3)_2\text{NCH}_2\text{CH}_2\text{NH}_2$ ).

Ott et al differs from the claims in the use of a particular polyglycidyl ether, complete reaction of the polyglycidyl ether to form the same reaction product of N-alkylating agents when the N-alkylating agents are capped with 2-hydroxy-3-

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chloropropyl, or the residual by-product chloride or bromide resulting from N-alkylating agents are capped with 2-hydroxy-3-chloropropyl.

Ott et al (column 6, lines 27 et seq; particularly lines 55 and 62-65) disclose a number of polyglycidyl ether or polyepoxides including but not limited to those derived from epihalohydrins, glycerol, and polyepoxide derived from the epoxidation of olefins.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the polyglycidyl ether or polyepoxides taught in the Ott et al reference as an obvious functional equivalent to the DER 732 or the epoxy resins exemplified.

To the extent the Ott et al reference differs in that the reaction of the polyglycidyl ethers are incomplete, less than 100%, or the compositions contain some residual by-product halogen, the Ott et al reference teaches the use of alternative polyglycidyl ethers and/or polyepoxides derived from epihalohydrins. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the materials derived from epihalohydrins as an obvious functional equivalent to the polyglycidyl ethers and/or polyepoxides exemplified, which would have resulted in polymer compositions having the same or substantially the same structure. See MPEP 2113.

***Allowable Subject Matter***

10. Claims 42-53 and 55-60 are allowed.

11. Claims 37-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

12. Applicant's arguments filed 10 September 2007 have been fully considered but they are not persuasive.

13. Applicants (page 15) assert the claims employ closed language regarding the amine containing monomer. This appears inconsistent with the claimed transitional language "comprising" and the characterization of the capping monomer further comprising a tertiary amine.

14. Applicants (page 16) indicate the terminal epoxides are sometimes capped with the monomeric amines. This is the basis of the rejection, The composition has not been adequately defined in the claim to determine the metes and bounds of the claimed subject matter. Applicants refer to the specification at page 10 and the examples. Said reference amounts to reading limitation into the claims that are not otherwise present.

15. Applicants (page 18) assert that the new claims, claims 61-63, exclude resins comprising an aromatic group in the backbone. This has not been deemed persuasive for the following reasons. Initially, (1) the claims are drafted in product-by-process format and do not set forth any structure. (2) The claims employ open transitional language, i.e., "comprising", which is open to elements of the claims that are not explicitly set forth in the claim. Since the Ott reference discloses both the epoxide or glycidyl compounds of aliphatic compounds and aromatic compounds, applicants



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amended new claims are not deemed to exclude the materials of the Ott reference.

Ott (column 4, lines 54) specifically teach diglycidyl ethers of polyalkylene ethers. The claims do not exclude aromatic compounds by the open transitional language. This is self-evident upon review of the claims and the further additional capping monomer clearly contemplated by applicants.


16. Applicants' (pages 18 and 19) assert the claims are non-obvious over Ott et al for the same reasons asserted in the above anticipation rejection. These arguments have been addressed above.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Daniel S. Metzmaier  
Primary Examiner  
Art Unit 1796

DSM